ABSTRAK

PREPARASI DAN KARAKTERISASI *EDIBLE FILM* DARI POLIBLEND PATI UMBI GANYONG-KITOSAN

Plastik pengemas makanan sintetik yang terbuat dari minyak bumi yang tidak dapat diperbaharui dan bersifat *nonbiodegradable*. *Edible film* sebagai pengemas makanan dari bahan alam menjadi suatu solusi masalah tersebut. Penggunaan pati sebagai bahan baku pembuatan *edible film* memiliki potensi yang besar, karena di Indonesia terdapat berbagai macam pati yang penggunaannya belum optimal diantaranya pati ganyong. Akan tetapi, *edible film* berbahan pati masih memiliki sifat mekanik dan ketahanan air yang masih rendah. Oleh karena itu, pada penelitian ini memformulasikan *edible film* dari poliblend pati ganyong-kitosan. Penambahan biopolimer kitosan diharapkan dapat memperbaiki ketahanan air dan sifat mekanik *edible film* yang dihasilkan. Tujuan penambahan sorbitol sebagai *plasticizer*. Metode penelitian ini meliputi dua tahapan, yaitu preparasi dan karakterisasi pati ganyong serta preparasi dan karakterisasi *edible film*. Hasil dari kadar pati total ganyong sebesar 74,04% dengan kadar amilosa dan amilopektin berturut-turut sebesar 37,58% dan 62,42%, suhu gelatinisasi 71,71°C, kadar air 21,55%, serta derajat kecerahan yang menunjukkan kurang cerah dan berwarna abu-abu pucat. Penambahan kitosan sangat berpengaruh terhadap sifat-sifat *edible film* yang dihasilkan, ketahanan air *edible film* cenderung meningkat seiring dengan peningkatan kitosan. Hasil terbaik ketahanan air sebesar 92,03% pada formulasi pati dan kitosan 6:4 g/g. Sedangkan nilai kuat tarik dan *modulus young* cenderung meningkat namun elastisitas *edible film* cenderung menurun. Hasil terbaik kuat tarik ialah pada formulasi 7:3 dengan nilai 16,96 MPa, elastisitas dengan nilai 8,6% pada formulasi 9:1, dan *modulus young* dengan nilai 4,44 MPa pada formulasi 6:4. Hasil SEM pada permukaan *edible film* dengan formulasi 7:3 masih terdapat beberapa retakan.

Kata kunci : *edible film*, pati ganyong, kitosan, sorbitol, SEM.

ABSTRACT

PREPARATION AND CHARACTERIZATION EDIBLE FILM FROM POLYBLEND CANNA STARCH-KITOSAN

A synthetic food packaging plastic which made from petroleum is not renewable and nonbiodegradable. Edible film as a natural food packaging become a solution for the problem. The usage of starch as the raw material of edible film has great potency, because in Indonesia there are varied of starch which is not used maximelly yet including canna starch. However, edible film is made from starch still has the low mechanical property and low water resistance. Therefore, in this research we formulated edible film from polyblend canna starch-chitosan. The addition of the biopolymer chitosan is expected to improve its water resistance and mechanical property of edible film. Sorbitol was added as a plasticizer. The research method includes two step, they are the preparation and characterization of canna starch, as well the preparation and characterization of edible film. Total starch of canna from research was 74,04% with amylose and amylopectin content, were 37,58% and 62,42% respectively, gelatinization temperature 71,71°C, the water content of 21,55%, and the degree of brightness showed less bright and pale gray color. The addition of chitosan affects the properties for resulting edible film, water resistance of the edible film increase tendencious by increasing chitosan. The best results for a water resistance is 92,03% on starch and chitosan formulations 6:4 g/g . While the value of tensile strength and modulus young tendsed was increase but elasticity of edible film tendsed to decrease. Tensile strength is the best result in the formulation of 7:3 with a value of 16.96 MPa, elasticity value of 8,6% for formulation 9:1, and modulus young value of 4.44 Mpa for formulation 6:4. Results of SEM (Scanning Electron Microscope) showed that formulation 7:3 there are some cracks on its surface.

Keyword : *edible film, canna starch, chitosan, sorbitol, SEM.*